REMARKS

Claims 1-32 were pending in the case. Claims 1-8 are under examination and have been rejected. New claims 33-37 have been added.

Amendment to the Specification

The specification has been amended at page 7 to remove a reference to information not ultimately placed in the drawings because unnecessary and at page 19 to correct obvious errors. No new matter has been added.

Rejection Under 35 U.S.C. §112, ¶1 – Written Description

Claims 6 and 8 were rejected under 35 U.S.C. 112, paragraph 1, as failing to meet the written description requirement in that the claims recite the phrase "substantially the same" whereas the specification discloses immunoglobulins with "substantially identical" sequences and defines the same as including sequences at least 98% identical to the recited sequences or having various defined substitutions.

In response Applicants have amended claims 6 and 8 to depend from claim 1, which has been amended to recite that the amino acid sequences of the light and heavy chains are at least 98% identical to the sequences of SEQ ID NO: 4 (heavy chain) and 5 (light chain) and that the recited antibody is isolated and has phosphotyrosine-specificity. The amendment to claim 1 is supported in the specification at page 10, lines 4-5, at page 9, lines 10-13, and at page 19, lines 19-23 (4G10 antibody is phosphotyrosine-specific).

It is certainly well within the skill of those in the art to prepare antibodies combinatorially and test them with phosphotyrosine-containing antigen that antibody 4G10 is specific for. For example, any antibody with CDR sequences similar to the antibody sequences disclosed by Applicants and framework sequences at least 98% identical to those of the Applicants disclosed heavy and light chain sequences is expected to have the same or similar specificity as 4G10 (i.e., specificity for phosphotyrosine-containing proteins). In addition, the Kabat reference cited by Applicants (at page 7, line 30, of the application) is very well known in this art and describes in detail the expected locations of the important specificity-determining CDR sequences for antibodies in general. The Kabat scheme is applicable to most, if not all, antibodies. For example, if one alters the amino acids in CDR regions then one would expect alteration of specificity whereas if the amino acids in the framework regions are altered, specificity would not be as greatly altered. These principles were well known at the time this application was filed and are described in the specification. Thus, Applicants were certainly in possession of the invention of claim 1 at the time of filing.

Rejection Under 35 U.S.C. §112, ¶1 – Enablement

Claims 6 and 8 were rejected under 35 U.S.C. 112, paragraph 1, as failing to meet the enablement requirement

In response, Applicants reiterate their arguments for the written description rejection above. The specification is replete with descriptive material on generating the antibodies of the invention, as already described.

Thus, Applicants have amended claim 6 to recite the antibody of claim 1 wherein the heavy chain has the sequence of SEQ ID NO: 4 and claim 8 to recite the antibody of claim 1 wherein the heavy and light chains have the amino acid sequences of SEQ ID

NOs: 4 and 5, respectively. These are, of course, fully enabled by the application as filed.

Rejection Under 35 U.S.C. §112, ¶2

Claims 1-8 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. In particular, claim 1 was rejected as vague and indefinite for use of the term "highly purified" and for use of the phrase "the same specificity as 4G10 monoclonal antibody."

In response, Applicants have amended these claims to recite simply an isolated immunoglobulin as that term is defined in the application (see page 16, lines 18-29) and to write the requirements for "highly purified" into claim 1. Amended claim 6 now recites an antibody wherein the heavy chain is the sequence of SEQ ID NO: 4.

Rejection Under 35 U.S.C. §102

Claims 1 and 2 were rejected under 35 U.S.C. 102 as being anticipated by Davis et al (U.S. 5,736,381) or Wong et al (U.S. 5,731,427), both of which teach use of monoclonal antibodies to detect phosphotyrosine in target proteins. Thus, the only relevant disclosure in the Davis patent is of a monoclonal antibody that binds to phosphotyrosine. The same is true of the Wong patent.

Because amended claim 1 now recites antibodies wherein the heavy and light chains have minimal sequence identity to the disclosed sequences, these references are no longer applicable against claim 1.

In addition, claim 2 recites that the antibody of claim 1 has heavy chains that show a single band on electrophoresis, as demonstrated in Figure 5 of the application. Because the references do not disclose a 4G10 antibody, and because the heavy chains of the commercially available 4G10 antibody fail to show a single peak on SDS-PAGE (see application at page 3, lines 1 – 8), claim 2 distinguishes over the art as well. Applicants note that the 4G10 antibody is known in the literature (see the Oda et al paper cited in the application at page 2, line 19, a copy of which is attached hereto as Exhibit A for the Examiner's reference).

Rejection Under 35 U.S.C. §103

Claims 3-5 were rejected under 35 U.S.C. 103 as being unpatentable over Davis et al (U.S. 5,736,381) in view of Roberts et al (US 2002/0025540). The Examiner notes that Davis does not disclose use of a histidine tag to purify an antibody but that such method is disclosed in Roberts, arguing that it would have been obvious to combine the references to produce the claimed invention.

In response, Applicants note that these claims now depend from claim 1, which is directed to an antibody not obvious over the cited art, and therefor claims dependent therefrom, which must incorporate all limitations thereof, are not obvious over the cited art.

New Claims

New claims 33-36 have been added.

New claim 33 has been added. This claim depends from claim 1 and is supported in the application at page 19, line 26-27. Thus, no new matter has been added.

New claim 34 depends from claim 8, and simply recite that the claimed antibodies comprise a histidine tag. New claim 35 depends from claim 34 and recites that the histidine tag is part of the heavy chain component. This is supported in the application at page 11, lines 10-15.

New claim 36 depends from claim 5 and recites that the heavy chain containing a histidine tag has the sequence of SEQ ID NO: 6. This is supported in the application at page 11, lines 17-21.

Applicants have included herewith the fee for a 1 month extension of time. No additional fee is believed due for filing this response. If any fee is due, or any additional fee is due, the Commissioner is authorized to charge any and all such fees to Deposit Account No. 03-0678.

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